



Report of the Commercial Space Committee

NASA Advisory Council



Goddard Space Flight Center
July 26, 2012

Commercial Committee Members

- ▶ Patti Grace Smith, Chair
 - ▶ Former FAA Associate Administrator for Commercial Space Transportation and consultant/advisor to space and aerospace companies
- ▶ Maj Gen Donald Hard (USAF, Ret.)
 - ▶ Independent consultant to government and industry
- ▶ Bernard A. Harris, Jr., (M.D.)
 - ▶ CEO of Vesalius Ventures, former NASA astronaut, and former SPACEHAB executive
- ▶ Lon Levin
 - ▶ Co-founder of XM Satellite Radio and other satellite businesses
- ▶ Steve Oswald
 - ▶ Founder and President of Syzygy Enterprises, former NASA astronaut, and former Boeing executive
- ▶ Franceska Schroeder (*Newly appointed on July 23rd*)
 - ▶ Principal attorney with Fish & Richardson
- ▶ Wilbur C. Trafton
 - ▶ Former NASA Associate Administrator for Space Flight and executive at ILS and Kistler Aerospace
- ▶ *Thomas Rathjen, Executive Secretary*
 - ▶ *Commercial Space Development Office, Human Exploration and Operations Mission Directorate, NASA HQ*

Agenda

- ▶ Committee Strategy for 2012
- ▶ Committee Meeting Schedule
- ▶ Summary of Recent Meetings
 - ▶ April 30 – May 1, 2012
 - ▶ July 23-24, 2012
- ▶ Proposed Finding and Recommendations
- ▶ Next Steps

Committee Strategy for 2012

- ▶ Through late summer, Committee is continuing to gather data that will contribute to formulating advice to the Agency
 - ▶ Receive briefings from all ten NASA Center Directors (MSFC, KSC, SSC, GRC, LaRC, JSC, and GSFC complete)
 - ▶ Conduct tours of lesser known NASA Centers with commercial activities and opportunities (MSFC and GRC complete)
 - ▶ Fact finding topics include:
 - Perceptions and promotion of Agency's Commercial Space strategy
 - Plans for transition
 - Excess capacity plans
- ▶ Receive briefings on various commercial space topics
 - ▶ Emphasis on areas where there are opportunities for the Committee to provide meaningful and timely advice
- ▶ Periodic one-on-one meetings between Committee Chair, other committee chairs, and NASA leadership
 - ▶ The NASA Administrator is pleased with the direction of our Committee is going in
 - ▶ Regular meetings with Mr. Gerstenmaier on his thoughts regarding communicate direction
- ▶ In late summer and fall, Committee will develop formal observations, findings, and recommendations to forward to the full NAC
 - ▶ Several to be presented today

Committee Meeting Schedule

- ▶ Dec 9, 2011, NASA Headquarters, Washington DC – Complete
- ▶ Feb 22-23, 2012, NASA Marshall Space Flight Center, Huntsville AL – Complete
- ▶ April 30 – May 1, 2012, NASA Glenn Research Center, Cleveland OH – Complete
- ▶ July 23-24, 2012, NASA Goddard Flight Research Center, Greenbelt, MD – Complete
- ▶ Sept, 2012, NASA Ames Research Center, Moffett Field, CA – *In Planning*
- ▶ Nov, 2012, NASA Marshall Space Flight Center, Huntsville AL – *Tentative*

Summary of Recent Meetings

Apr 30 – May 1, 2012

- ▶ NASA Glenn Research Center (GRC), Cleveland Ohio
 - ▶ Open and closed sessions
- ▶ Attended by:
 - ▶ Patricia Smith, Chair
 - ▶ Lon Levin
 - ▶ Steve Oswald
 - ▶ Will Trafton (by telecom)
- ▶ Agenda:
 - ▶ Tour of GRC's Plum Brook facilities (Committee only)
 - ▶ Open Session:
 - ▶ Briefing: Overview of Glenn Research Center's Commercial Space Activities and Plans, Mr. Ray Lugo, Director, Glenn Research Center
 - ▶ Briefing: Overview of Langley Research Center's Commercial Space Activities and Plans, Mr. Steve Jurzyck, Deputy Director, Langley Research Center
 - ▶ Briefing: Overview of Johnson Space Center's Commercial Space Activities and Plans, Dr. Ellen Ochoa, Deputy Director, Johnson Space Center
 - ▶ Briefing: Commercial Crew Program Certification Phase Strategy, Mr. Ed Mango, Manager, Commercial Crew Program
 - ▶ Briefing: Office of Safety and Mission Assurance Comments on Transition to Commercial Space, Mr. Terry Wilcutt, Chief Safety and Mission Assurance
 - ▶ Briefing: Center of Excellence for Commercial Space Transportation, Mr. Ken Davidian, Director of Research, Office of the Chief Engineer, Federal Aviation Administration of Commercial Space Transportation
 - ▶ Closed session:
 - ▶ Discussion: Pre-deliberation planning to work potential findings and recommendations
 - ▶ Briefing: Annual Ethics Briefing, Adam Greenstone, NASA Office of General Council

Summary of Recent Meetings

Apr 30 – May 1, 2012

▶ Key take-aways:

- ▶ There are an impressive number of commercial partnerships ongoing or in planning at the three centers who presented
 - ▶ Each has a unique approach to how they develop and deliver partnership arrangements
- ▶ Space Act Agreements are the key tool for enabling partnerships with commercial industry, and experience with the approval process has been mixed
 - ▶ Consistent with take-away from earlier presentations by other Centers
- ▶ Opportunities for Committee input include:
 - ▶ Improving industry awareness of Centers' capabilities and opportunities for partnership
 - Develop varied means of soliciting company involvement
 - ▶ Improving processes for commercial partnerships (e.g., space act agreements)
 - ▶ Workforce planning considerations during NASAs transition

Summary of Recent Meetings

July 23-24, 2012

- ▶ NASA Goddard Flight Research Center (GSFC), Greenbelt, MD
 - ▶ Open sessions, including a joint meeting with the HEO and Finance/Audit/Analysis committees
- ▶ Attended by:
 - ▶ Patricia Smith, Chair
 - ▶ Bernard Harris (7/23 only)
 - ▶ Lon Levin
 - ▶ Steve Oswald
 - ▶ *Note: New member Franceska Schroeder was appointed after the start of Monday's Committee meeting, and therefore attended as an observer on 7/23 only*
- ▶ Agenda:
 - ▶ Commercial Space Committee Open Session, 7/23:
 - ▶ Briefing: Results of the Recent SpaceX Commercial Orbital Transportation Services (COTS) Demonstration Mission to International Space Station, Alan Lindenmoyer, Manager, COTS Program
 - ▶ Briefing: Goddard Space Flight Center's Commercial Space Activities and Plans, Christopher Scolese, Director, Goddard Space Flight Center
 - ▶ Briefing: Acquisition Process Lessons-Learned for the Evolved Expendable Launch Vehicle Program, Joe Boyle, Aerospace and Defense Consultant
 - ▶ Discussion: Deliberation on candidate findings and recommendations
 - ▶ Joint Session, 7/24:
 - ▶ Briefing: Commercial Orbital Transportation Services/Commercial Crew Development, Phil McAlister, Director, Commercial Space Development
 - ▶ Briefing: Overview of Contracting Options, Bill McNally, Assistant Administrator for Procurement
 - ▶ Discussion: Joint deliberation on above topics
 - ▶ Commercial Space Committee Open Session, 7/24:
 - ▶ Discussion: Deliberation on candidate findings and recommendations

Summary of Recent Meetings

July 23-24, 2012

▶ Key take-aways:

- ▶ The Committee applauds the accomplishments of SpaceX and NASA's Commercial Orbital Transportation Services (COTS) Program on the recent demonstration flight to the International Space Station.
- ▶ There are a variety of acquisition approaches available for NASA's commercial space endeavors. There is no absolute, uniform approach that is best. The key is to identify an approach that best enables the desired objectives and attributes for a particular phase and situation.
- ▶ Goddard Space Flight Center has a long history of commercial partnerships, which are continuing under the present Agency transition.

Proposed Findings and Recommendation

▶ Findings

- ▶ CSC-2012-F1: Implementation of Commercial Space Policy at NASA Centers
- ▶ CSC-2012-F2: Center Director Concerns
- ▶ CSC-2012-F3: Commercial Crew Program Office Involvement

▶ Recommendation

- ▶ CSC-2012-R4: Workforce Skill Mix

Proposed Finding CSC-2012-F1

- ▶ Title: Implementation of Commercial Space Policy at NASA Centers
- ▶ Finding: The Council finds that Kennedy Space Center sets an excellent example of how to gain acceptance by employees and contractors of the commercial space policy—specifically, commercial space initiatives at the center director level, including documents like the KSC Director’s Planning Guidance, 2011.
- ▶ Major Reasons for Finding: This finding is based on several presentations to the Commercial Space Committee by Center Directors and Acting Center Directors over the past year. The KSC “Director’s Planning Guidance 2011” is a comprehensive document for use by KSC employees and contractors. Other Center Directors should consider publishing a similar document.

Proposed Finding CSC-2012-F2

- ▶ Title: Center Director Concerns
- ▶ Finding: The Committee finds that there is concern at the Center Director level that before proposed legislative material leaves the Agency for further vetting and consideration, a review by Center Directors would be desirable.
- ▶ Major Reasons for Finding: Earlier this year, the Commercial Space Committee was made aware of the process of submission by Centers to NASA Headquarters of draft legislation. A number of Centers expressed concern about the disposition of their input, such as proposed changes that would remove impediments to commercial partnerships. Ensuring two-way communication with Agency leadership about the Centers' concerns and proposals would help ensure that concerns are heard throughout the process.

Proposed Finding CSC-2012-F3

- ▶ Title: Commercial Crew Program Office Involvement
- ▶ Finding: The Council finds that the success of NASA's commercial space initiatives critically depends on how well the Agency manages the government-to-industry interfaces and the level of involvement of the governing program offices.
- ▶ Major Reasons for Finding: NASA elected to pursue commercial launch solutions to stimulate America's intrinsic and innovative nature with the longer range goal of reducing the cost of access to low earth orbit. Ironically, a possible threat to achieving these goals is NASA itself. For decades, NASA has demonstrated that it is very good at managing large technical programs, especially in human spaceflight. NASA also clearly remains responsible for crew safety in the age of commercialization, and industry will certainly need to leverage NASA's considerable technical expertise from time to time. However, NASA will need to resist any inclination to "over-manage" at all levels if the commercial programs are to be successful, both to avoid cost growth and to preserve innovation.

Proposed Recommendation CSC-2012-R4

- ▶ Title: Workforce Skill Mix

- ▶ Recommendation: The Council recommends that as NASA evolves its workforce skill mix and human capital planning to accommodate the Agency's future direction in the post Space Shuttle era, the unique skills needed for effectively overseeing commercialization initiatives should be considered and secured.

- ▶ Major Reasons for Recommendation: Clearly, NASA will need many of the same skills that flew Space Shuttle safely to manage their commercial launch providers and ensure commercial crew transportation safety. However, overseeing commercialization initiatives also needs skills and experience in areas such as business development, business analysis, and business operations, which do not appear to be currently available in great depth in the Agency. NASA should address this gap through training, recruitment, and/or other personnel actions.

- ▶ Consequences of No Action on the Recommendation: The Agency's workforce will continue to lack the depth in some critical skills and experience needed to effectively oversee commercial space initiatives.

Next Steps

- ▶ Next Committee meeting will be at NASA Ames Research Center (ARC), mid September
 - ▶ Potential agenda items
 - ▶ Tours of ARC facilities pertaining to commercial space
 - ▶ Briefings of center commercial space activities and plans by ARC, Dryden Flight Research Center, and the Jet Propulsion Laboratory
 - ▶ Plan to request briefing from NASA Deputy Administrator
 - ▶ Briefing on Commercial Crew Integrated Capability (CCiCap) awards
 - ▶ Briefing on Space Act Agreement usage from an HQ perspective
 - ▶ Briefing on Agency efforts to manage duplication of facilities/capabilities
 - ▶ Deliberate on additional candidate findings and recommendations
- ▶ Tentatively plan to conduct final 2012 Committee meeting at NASA Marshall Space Flight Center, in conjunction with next full NAC meeting